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Cobra®

OPERATING INSTRUCTIONS FOR YOUR

Cobra®

TURBO power inverter

"Big Power In Small Packages."

MODELS EXECUTIVE AND TRAVELER

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TURBO power inverter

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INTRODUCTION

Thank you for your purchase of a Cobra® TURBO power inverter. The TURBO series provides big power in small packages. High efficiency designs make each model ideal for all mobile environments where space is at a premium.

Inverter is the proper term for any device that turns DC (direct current) into AC (alternating current). The TURBO inverter takes 12 volts DC from your battery and converts it to 115 volts AC to run appliances. Just like utility power, the frequency is held constant at 60 Hertz, and the output voltage is regulated between 110 and 120 volts true RMS, despite changes in load and battery voltage.

The energy delivered by the inverter comes from the battery which powers it. And that energy was put into your battery by your battery charger, which might be a vehicle alternator or an electronic power supply.

The most appropriate use of an inverter system is for light, long-term loads, such as TVs, VCRs and small computers.

There really aren't a lot of do's and don'ts to remember. Your TURBO inverter is designed to protect itself and your battery.

NOTE: While the TURBO inverter does not mistreat your appliances, it cannot protect them. A light bulb can burn out, or an appliance can fail, just as it might when plugged into utility power.

Please take a few moments to read this owners manual. It contains important safety information as well as practical application tips.

SAFETY

A few common-sense precautions should be observed:

1. The TURBO inverter delivers 115 volts AC. This is the same kind of electricity as in the wall sockets of most homes and offices. 115 volts AC is potentially lethal and must be treated with respect.
2. The TURBO inverter is intended to deliver stand-alone AC power. Its output cannot be safely connected to utility power, another inverter, a generator, or any other power source. Where other power sources are available in the same system, isolating relays should be used to prevent connection of the inverter's output to those other sources of AC.
3. In case of malfunction, immediately turn the power switch OFF (TRAVELER) and disconnect the inverter from the battery.
4. DO NOT STICK ANYTHING INSIDE THE CASE. The high voltage inside can cause severe injury, even death.
5. KEEP THIS UNIT AWAY FROM CONTACT WITH WATER OR OTHER LIQUIDS.
6. DO NOT OPERATE THIS UNIT, or any electrical device, when you, the device or any surfaces that might touch a power source are WET. Many fluids can conduct electricity, causing severe injury, even death.
7. Under certain operating conditions THIS UNIT AND/OR THE PLUG TIP WILL BECOME VERY HOT TO THE TOUCH. Temperatures can exceed 140 degrees Fahrenheit. Do not put in contact with heat sensitive items or skin.
8. DO NOT OPEN THE CASE. This will void your warranty.

SAFETY (continued)

9. When using the inverter BE SURE THAT THE CORDS WILL NOT GET IN THE WAY WHILE DRIVING. Make sure that the areas needed for shifting, steering, braking, etc. are not blocked or obstructed. REMEMBER, THINGS MAY SHIFT AROUND AS YOU TURN, SPEED-UP, OR SLOW DOWN.
10. KNOW THE ELECTRICAL REQUIREMENTS OF THE DEVICE YOU OPERATE. If you are unsure about the requirements, call the manufacturer of the device you are trying to operate. Do not use the inverter to operate any device that requires more than 140 Watts of continuous power (TRAVELER) or 80 Watts (EXECUTIVE).
11. REVERSE POLARITY will blow the inverter's 14 AMP FUSE. Use a 15 Amp fuse or smaller if needed for replacement (EXECUTIVE).
12. DISCONNECT THE INVERTER WHILE CHARGING YOUR BATTERY WITH A BATTERY CHARGER OR DAMAGE MAY RESULT.
13. DO NOT CONNECT THIS INVERTER TO ANY AC POWER SOURCE, DAMAGE WILL RESULT.

APPLICATIONS

Power output is most affected by input voltage (from your battery) and inverter temperature. The inside of a closed car can reach 160 degrees Fahrenheit, and an inverter will produce little power when this hot. We recommend running the motor for 10 min. during every hour or so of inverter use. It is perfectly safe to operate your device while the vehicle engine is running.

TELEVISIONS, VCRs and VIDEO GAMES

When starting your TV: Some TV's require "charging". To do this simply press the "ON" or "START" button of the TV repeatedly while the TV is plugged into the inverter. In general it is best to turn on the TV first and then other devices. For some electronic switch or remote control TV's it is best to turn the TV on and then plug it into the on-line inverter.

COMPUTERS

Many desktop computers are within the power ranges of the Executive and Traveler. However, monitors may have to be powered by an additional inverter separate from the computer. All laptop, and notebook (including color screen) computers are well within the capacity of the TURBO inverter. Do not try to operate a laser printer or any device that requires true sinewave, you may damage the laser printer.

BATTERY CHARGERS

Chargers that plug directly into a wall socket and have a transformer between the wall socket and the charger work very well with TURBO inverters. Chargers that do not have a transformer built-in should never be used with TURBO inverters. Contact the charger manufacturer if you are unsure about using a modified sinewave inverter with the charger.

INSTALLATION

This inverter is a quality instrument that will serve you faithfully for many years. To use it, just plug it into any negative grounded cigarette lighter that is fused for 20 amps or more. Then plug your device into the inverter and turn it on. Use a multiple outlet plug to operate two or more appliances at once. To run appliances at a distance from the car, use AC extension cords. Don't attempt to extend the cigarette lighter connection.

A 13" color TV uses about as much energy as one headlight. Your battery could probably deliver that much energy for over six hours, but it's better to keep the battery fully charged by running your engine ten to fifteen minutes each hour. Disconnect the inverter whenever you're not using it (EXECUTIVE). Even with nothing plugged into it, there's a small power drain, and it can eventually run your battery down.

The output is factory set to 115 volts AC, 60 Hertz and is not adjustable. The waveform, a "modified sinewave", has been found satisfactory for running virtually all loads. The output voltage can only be measured accurately with a "true RMS" voltmeter. Because of the special waveform, all other voltmeters will read up to 25 volts low.

It is normal for the inverter to self-test for about two seconds before turning on. It is also normal for it to run warm. It protects itself from overload and excess heat by turning off and on. If this happens, reduce the load or air cool the unit or both. Failure to operate is usually caused by a poor plug/lighter socket connection, ignition switch in the wrong position, or blown lighter fuse. Be sure your lighter works, or try another car.

TROUBLE SHOOTING TIPS

The most common problems are very simple to correct: A) the inverter is not drawing power from your cigarette lighter; B) the device you are plugging into the inverter is not plugged in or working properly; or C) it requires more power to operate than the inverter can deliver.

Check the following:

A) The most common problem is that the inverter is not getting any power into it.

Try unplugging the inverter and inserting the cigarette lighter, pushing it all the way in to activate the cigarette lighter. If the cigarette lighter does not heat up, then:

1) Turn on the ignition switch of the vehicle to power up the cigarette lighter.

2) Check the vehicle's circuit fuse to be sure it is working (use at least a 15 amp auto circuit fuse unless your vehicle owners manual states otherwise, many circuits require a 20 amp vehicle fuse).

If the cigarette lighter still is not working, refer the problem to your vehicle service provider.

If the cigarette lighter does heat up, indicating that the inverter should be getting input power, try the following:

3) Reinsert the inverter's lighter plug back into the vehicle cigarette lighter receptacle and be sure the plug and receptacle are making good electrical contact. Try pushing the plug in and turning it.

4) Check the inverter's fuse (EXECUTIVE), located in the tip of the inverter's cigarette lighter plug. Replace if necessary.

5) A faint buzzing sound indicates that the inverter is working.

TROUBLE SHOOTING TIPS (cont'd)

B) After following these directions without satisfactory results, try starting an electrical load that you know is in working order, like a lamp with a 100 Watt or smaller bulb. If the bulb starts then the problem is with the device you were trying to start, or the connection in the set up. To correct this:

1) Be sure the device is properly plugged in and turned to the "ON" position.

2) Be sure that the device does not require more power than the inverter can deliver.

3) Be sure the device you are trying to operate is in proper working condition. If the bulb does not start, check all electrical connections including the fuse located in the tip of the plug as well as your vehicle fuse (EXECUTIVE). Remember to turn switches or buttons to the "ON" position. If the bulb will not start it is likely that your inverter is not working properly.

"THE DEVICE I'M TRYING TO OPERATE DOESN'T SEEM TO WORK RIGHT."

C) The most common problems are 1) You are operating a device(s) that requires more than 80 Watts (EXECUTIVE) or 140 Watts (TRAVELER), or 2) The device you are trying to operate is not working properly.

1) As an example: A 27-inch color TV will often start, but after a while the screen will "shrink" or the picture will lose color and turn into a black a white picture or the sound will drop out. Or a 21-inch TV does just fine until you try plugging is a 40 Watt light bulb or running the VCR, at which point you experience problems. This results from over-tasking the capacity of the inverter. If any of these conditions occur, turn the device off.

2) Please be sure that the devices you are trying to operate are in proper working condition by plugging them into a standard wall outlet before deciding that the inverter is not working.

TROUBLE SHOOTING TIPS (cont'd)

"THE INVERTER SEEMS TO GET TOO HOT, OR TURNS OFF UNEXPECTEDLY."

The most common cause is that you are losing electrical contacts at the plug due to motion of your vehicle, which causes the electrical connection to be broken. A second possibility is that you are pushing the inverter beyond its rated limits. In most circumstances, the inverter will simply reduce the output voltage and stabilize in temperature. This lower voltage output may put the inverter below the voltage requirements of the device(s) you are trying to operate, and the device(s) may shut off unexpectedly. In this case, turn the device(s) off, allow the inverter to cool down, and then turn the device(s) on again.

SPECIFICATIONS

	EXECUTIVE	TRAVELER
Output Power,		
Continuous:	**80 Watts**	**140 Watts**
Peak:	**200 Watts**	**400 Watts**
Input Voltage:	**10 to 15 Volts DC**	**10 to 15 Volts DC**
Output Voltage:	**115 volts AC ±5%**	**115 volts AC ±5%**
Output Frequency:	**60 Hz ± 2 Hz, Modified Sinewave**	**60 Hz ± 1 Hz, Modified Sinewave**
Idle Current:	**0.1A**	**0.25A**
Efficiency:	**>90%**	**>90%**
Thermal Protection:	**Proportional power reduction**	**Proportional power reduction**
Overload Protection:	**Dual mode limiter**	**Dual mode limiter**
Dimensions:	**1 1/2" H x 4 1/8" W x 1 1/2" D**	**1 1/2" H x 5 1/8" W x 2 1/2" D**
Weight:	**8.2 oz**	**14.9 oz**

LIMITED ONE-YEAR WARRANTY

COBRA ELECTRONICS CORPORATION warrants that its COBRA power inverter products, and the component parts thereof, will be free of defects in workmanship and materials for period of one (1) year from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser, provided that the product is utilized within the U.S.A.

Cobra will, without charge, repair or replace, at its option, defective inverter products or component parts upon delivery to the Cobra factory Service Department, accompanied by proof of the date of first consumer purchase, such as a duplicated copy of a sales receipt.

You must pay any initial shipping charges required to ship the product for warranty service. The return charges will be at Cobra's expense if the product is repaired or replaced under warranty. For further details concerning procedures for obtaining service, see the "If You Need Service" section of this Owner's Manual.

Exclusions: This limited warranty does not apply 1) to any product damaged by accident, improper input voltage or weather related circumstances; 2) in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs; 3) if the serial number has been altered, defaced or removed; or 4) if the owner of the product resides outside the U.S.A.

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

Cobra shall not be liable for any incidental, consequential or other damages, including, without limitation, damages resulting from loss of use or cost of installation.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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